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VICKS MAGAZINE

VOL. 20

ROCHESTER, N. Y., JULY, 1897

No. 9

CARNATION CULTURE.

THE carnation ranks next to the rose in popularity. The remontant or tree carnation is one of the most important plants with the commercial grower and the florist. Immense quantities of the flowers are raised. New varieties of it appear every year, and it appears to claim the attention of many skillful plant originators.

In private places supplied with glass structures, much attention is also given to this plant and those who are provided only with a conservatory, or even an enclosed bay window, successfully raise it as a window-blooming plant. As an ordinary house or window plant, however, in the colder portions of the north it is not well adapted, and is seldom well raised under these circumstances. In the milder middle region of the country, the amateur grower, even without the assistance of glass, has fairly favorable conditions, and satisfactorily raises the plants. The garden carnations, which are hardier, can with proper care, be raised almost anywhere.

In order to succeed with tree carnations several important points must be carefully attended to. The propagation of plants from cuttings is usually done from February to April, and care must be exercised that the cuttings be taken from healthy plants, and that after rooting they be brought along steadily, and without being allowed to flag. Experience has shown that the young plants can be much better cared for in the open ground during summer than in any other way, and this course is now almost universally followed. The young, well-rooted plants in the greenhouse can be taken out and placed in a cold-

frame as soon as the weather conditions are suitable, preparatory to planting out in the open ground later. When danger of heavy frosts is past in spring, the young plants can be set out for the summer and be carefully cultivated. The large grower plants out in rows about three feet apart and eight or

ten inches distant in the rows, keeping the ground clean and mellow, at first with the hoe and afterwards by use of horse and cultivator. The private grower uses the hoe, giving the plants only the space they may require. The aim is to maintain a steady, thrifty growth during the season. All flower buds must be kept off, and the ends of the shoots must be pinched in several times during the season in order to make the plants as branching as possible, and so capable of producing the greatest number of flowers.

The plants are left out until frosts are to be expected; then they are carefully lifted, each with some soil attached, and taken to the potting-room, potted, watered and left a few days in the shade. Afterwards they are given a place near the glass, which for a few days may require to be shaded. Commercial florists set the plants in solid beds in their houses. The most favorable temperature for the plants from this time forward is from 50° to 55°. As to the supply of water,



CARNATION, MAYOR PINGREE.

wet the soil thoroughly, and then allow it to become nearly dry before watering again. Carnation growers have become very critical in regard to varieties, and a new one must have many superior points to be acceptable. The engraving here presented shows a new yellow variety, Mayor Pingree, which in the short time since its introduction has become a general favorite.

SOME TRUTHS ABOUT HEDGES.

FOR some years past we have felt a growing reluctance to recommend the general planting of hedges. This is especially true as regards the more common kinds, such as honey locust, osage orange, and the like, the plants of which are always available at temptingly low prices. We have reached this conclusion because wide observation has made it clear to us that the successful hedge is hardly to be found, while those that are unsatisfactory are very numerous.

hedge, annually, through five, twenty, or more years, who is sufficient for that part of the programme? Directions for the proper starting of the hedge are found in many books and catalogues. The start may be all right, but the after-care not being properly counted on, failure,—it may be of the worst kind,—is the certain consequence.

The illustrations of hedges shown with this article were sketched from life. The first is that of a buckthorn hedge in a private garden, where a regular gardener

not properly appreciated,—the trees were allowed to grow strong trunks before even the first cutting back was done. The result was that the crowded condition, considering the rankness of growth, which resulted from not checking the same by frequent pruning, caused injury to many of the trees, and subsequent gaps, as shown. Without doubt when that hedge was set the planter had an ideal not much different from fig. 1 in his mind. Who can imagine a wider contrast than that between the ideal and the real,



Fig. 1—THE IDEAL HEDGE WE START OUT TO HAVE. *Sketched from life.*

A dense, well formed hedge is an object which any home owner might well desire to possess. That it is possible, under favorable circumstances, to grow a handsome and perfect hedge, one for example like fig. 1, will not be denied; but that four out of every five persons who start to raise a hedge, having in mind an ideal like fig. 1, have at fifteen years later nothing better to show than rows like those of figs. 2, 3 or 4, is a fact that can hardly be disputed. Assuming that the growing of a successful hedge is possible, what are the causes of so many failures along this line?

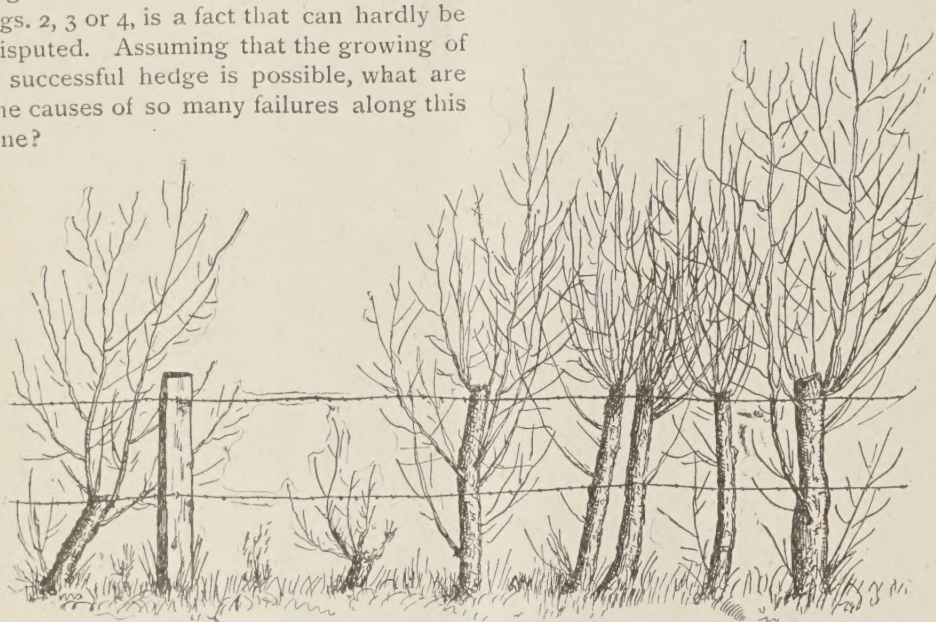


Fig. 2—THE HEDGE AS IT OFTEN TURNS OUT. *Sketched from life.*

First among causes of failure must be put down that almost universal one of not providing the needed annual care in pruning and otherwise, which a good hedge demands. Its success depends almost wholly on this. The first step, namely: Obtaining the necessary plants, is easy, and the price low; the second step, that of planting, is no more difficult than to set an equal number of any other kind of tree; but the third or subsequent steps needed to insure proper care to the

with several assistants is employed; here the requisite third step in after-care is well provided, and the hedges, of which there are a number, are as finely cared for as are the flower beds. Under such circumstances a handsome hedge can be grown of many different kinds of trees and shrubs,—it is not nearly as much a question of kind as it is of care. In that respect, hedge culture is much like mak-

ing a lawn: With good treatment you can make a passable lawn of almost any kind of grass, while with poor care the best of grasses will not make a pleasing sward.

Figure 2 represents a hedge of which many examples may be found. It is of that largely planted kind, the osage orange. True, this species is not hardy in some soils, but that was not the trouble in the case illustrated. The presence of the well defined stumps shows that the third step, or condition alluded to, was



Fig. 3—NOT VERY PROMISING HONEY LOCUST HEDGE.

as they were faithfully sketched on the spot recently?

Figure 3 shows a honey locust hedge much younger than the osage hedge of fig. 2, and growing within half a mile of it, but which is destined to cut quite as ill a figure in time. The growth of this is rank, some of the upper last year's shoots being fully five feet in length. Evidently the plants have been cut back but twice, once at about two feet from the ground and again at twice that height. But the rank growth is all at the top; the trunks are unfurnished near the ground, and a good hedge from such treatment is wholly out of the question. Soon there will be gaps caused by some of the trees dying out,—even now wires or boards would be needed if swine and sheep were to be



Fig. 4—A PRIVET HEDGE IN A PARK, WITH PICKET FENCE PATCHES.

turned back. This hedge will be a disfiguring object to the place it occupies, growing worse and worse with years, so long as it remains. And of all unsightly objects to be met, an old, ill-managed, gap-abounding honey locust hedge row is about the worst. An osage hedge bad as that of fig. 2, looks not so bad beside it, for the trees of the latter do not grow so large, and they also lack the repulsive bunches of thorns found on an old honey locust.

Figure 4 shows a section of a privet hedge in a public park. Here the fault which caused the gaps cannot be attributed to bad care so much as to the choice of plant employed. It is the fault of the

privet more than of most other hedge growths, that it is liable, even in a well kept row, to have some plants fail after being well under way. Unfortunately it is impossible to fill out a hedge that is along in years with new plants of the same kind. That makes it necessary to resort to the picket-patching course, if the gaps are not to become runways for men and quadrupeds. The mere fact that such gaps are liable to occur in well-established hedges, would be a sufficient reason, to the minds of many, for not planting a hedge at all.

To take up the matter of the successful hedge, dealing with the subject from a standpoint not usually followed by writers on the subject, would make this article too lengthy. It may be resumed later. *

however, the constellations of the heavens were bandied around as these professors bandy plant tribes, it is scarcely conceivable how a rational science of astronomy could be formed. Even when the authors profess to follow a catechism they don't do it, but are sure to be lured away into the complex mazes of ordinal affinities. In any attempt I have made to use simultaneously a set of botanical books, I have been tempted to wish them burned up in a bonfire. Even the works from the most active herbarium in the world, with the greatest resources, fail to correspond. Sir Joseph Hooker, Asa Gray, and many others have expressed the opinion that such constant changes "will not be generally popular," that they are "unmitigated evils." They are ex-

sors. There seems no sufficient reason for commencing with the Cycads. The joint firs appear to be in closer affinity with the Casuarinaceæ and Myricæ than they, and quite as truly exogenous. Moreover, it is quite desirable, from a landscape point of view, to retain a deciduous genus for each of the well marked tribes,—Abietinæ, Cupressinæ, and Taxinæ,—because they are useful to enhance the effect of a pinetum.

Upon the whole, the groups of the Genera Plantarum are better adapted for effect upon the ground than anything preceding or succeeding them, and the sequence of tribes in the following papers will differ but little from that work, and Gray's handbooks. The distinction of semi-tribes and demi-semi-tribes of the



THE WELWITSCHIA.

CONIFERALES.

The Gnetum, Pinus, and Cycas Group.

THE Genera Plantarum, of Bentham & Hooker, published a few years ago, made some nine or more tolerably distinct tribes of this important group, with forty-six genera and 419 species.

Since the publication of that work, botanists have again run amuck through the plants, reversing their sequence, splitting up the tribes and genera, or consolidating them, and occasionally changing the nomenclature. It is to be hoped these distinguished gentlemen are at least profoundly satisfied with each other, and that their labors "help science!" If,

actually right. Botanical study is being made a drudgery, chiefly, I fear, through the work of laboratory professors, and which will eventually need to be superseded completely. It would seem that much confusion might have been avoided by the simple expedient of preparing lists of synonymous names, with a request to botanists in the various countries to indicate the ones most commonly used and understood. In this way so obsolete a name as *Agathis* would scarcely have superseded *Dammara*.

In the following papers the latest sequence of tribes will not be followed, because it does not seem so well adapted to garden groups as some of its predeces-

herbarium and laboratory should have no recognition in garden grouping, which, although designed to marry science to the garden, cannot use arbitrary and final subdivisions with consistency, completeness or effect.

Roughly, then, the following genera may be grouped under the five named tribes: Gnetæ, Abietinæ, Cupressinæ, Taxinæ, and Cycadæ.

It will be useful to remember that all planting in a garden or park is done either in a belt, a group, or in single trees or plants. Their regularity or irregularity will not remove them from the classification. There is no limit, then, to the manner of disposing a pinetum. If, how-

ever, the groups, as indicated, are disposed with artistic insight, and separated either by grass or walks, their effect will not only be greater as a factor of the landscape, but the scheme of science will be conveyed more clearly to the mind, and the books will seem to have a better reason for consistent existence and classification.

In the tribe Gnetee the genus *Ephedra*, "Joint Firs," has between twenty and thirty species inhabiting the temperate, sub-tropical and tropical parts of America, often the mountainous regions; in Asia, also, they are found in similar stations, and in Europe they are found chiefly in the Mediterranean region. They are uncommon plants in gardens. *E. altissima* is a showy plant when in berry, and may be met with, but rarely, in the gardens of southern England. *E. monostachya* and *E. distachya* have also been cultivated in the same country. *Ephedra Nevadensis*, from the Rocky Mountain regions, is also known in European gardens, as is also a variety with drooping branches. Both are shrubby plants, from two to five feet high. I have never seen or heard of their being in gardens of the Atlantic States.

The genus *Gnetum*, with fifteen species, is found in the tropical parts of Asia, Africa and America.

The *Welwitschia* is monotypic, and a singular plant indeed. It was discovered in the tropical parts of south-western Africa, by Dr. Welwitsch, and specimens were received in Europe in 1863, when they excited great interest. It is not easy to convey an idea of such a plant; however, if one will take an old saddle and cut the flaps into ribbons, set it on a dry sand dune, with the ribbons of leather spread out around it, and stick something crimson-coned at intervals around the seat to represent the fructifications, some idea of this queer anomaly may be had, both as to its appearance and the places it inhabits. A great deal of speculation was indulged in at Kew when the speci-

men arrived, as to how such a queer customer could be successfully grown if received alive, for it was reported to be very deep-rooting in the sand,—besides, rain rarely falls where it grows. In many ways the conditions of its life seem similar to those of the *Cactee* found along our Mexican boundary, and it is more likely to be successfully grown in some garden (!) of that region than anywhere else in North America or Europe.

JAMES MACPHERSON,

Trenton, N. J.

claimed, and which appear to be amply sustained:

It produces a more vigorous and rapid root action, and is suitable to all kinds of plants, thus doing away with the necessity of preparing soil in various ways for different kinds of plants.

It is cleaner than soil to handle.

It always remains sweet, and does away with the smell of sour earth in rooms.

It is only half as heavy as soil, which is a valuable point, especially with bracket plants and those in hanging baskets.

It is said to retain moisture twice as long as soil.

No weeds are introduced in the fibre, and slugs, worms and insects cannot exist in it.

Plants in jadoo are said to grow better than in soil, and the brilliancy in the color of the flowers is increased, and the flavor of fruits and vegetables enhanced.

Seeds germinate more quickly in it than in soil, and cuttings root in half the time.

Plants in pots of jadoo do not require repotting so often, and pots of smaller size can be used.

In setting out in the open ground pot plants raised in jadoo, the ball of fibre containing the roots is transferred without disturbance and the plants receive no check by the change.

The statements here given in regard to this material, constitute some of the principal claims that are made for it. The claims appear to be substantiated by many well known English nur-

serymen, plant growers and horticulturist, and by the leading English horticultural and other journals. The fibre has also been tried in this country and in Jamaica with excellent results. Jadoo has been on the English market now for more than two years, and has acquired an enviable reputation and is apparently coming into common use there. In connection with the fibre there is also sent out a liquid, called Jadoo Liquid, which is used for fertilizing the fibre when needed, and is also used on pot soil.

A branch establishment has recently



SPECIMENS OF CALLA AND ROMAN HYACINTH GROWN IN JADOO FIBRE.

JADOO.

ON this page is presented an engraving of plants, *Richardia* and Roman hyacinth, that have been raised in jadoo, showing a large and healthy root development. And what is jadoo? Jadoo is a fibrous material to take the place of soil in plant growing. What is the natural source from which the material is derived, the public, at present, is not allowed to know. The discoverer and patentor of the fibre is an Englishman, Col. Halford Thompson. The main points of practical interest about this material are these, as

been open in this country to manufacture both materials and send them out. It is known as the American Jadoo Company, and is located at Philadelphia. A limited amount of the material is now on the American market, and by autumn the Company expects to be able "to turn out five tons of fibre and 500 gallons of liquid per day." It is expected that the expense of these materials will be such that commercial and private plant-growers can afford to use it, at least for certain kinds of plants, in preference to soil.

* *

GUAYAMAS, MEXICO.

PERHAPS some of the readers would like to know what this far away corner of the earth is like. It is a tiny

shape of a flower. It is most amusing to an American to sit and watch them, and see how deftly they snatch the flowers and thrust them into their sleeves and dress-fronts. Just now (April 2d) a large bed of single blue and pink delphiniums is the prettiest sight to be found there; it is left to self-sow and the plants are very thick. I bought a bouquet of its dainty flowers this morning, and found some curious "sports"; the lovely shell-pink flowers striped, spotted or mottled, half covered with the deep, glistening blue.

The soil is very poor here,—most all gravel. Seedlings start and grow to a few inches, then gradually turn yellow and die from want of nourishment.

From November to the middle of May

flower-stalks three feet long or more, from the end of which are suspended a score or more of narrow-petaled flowers, outside shining blush-red, inside nearly white, with rosy stripe through center of each petal, and very sweet. I have seen single petals five or six inches long.

Three Marechal Niel roses, with long, crooked main stalks, bravely try to do their best, putting forth a new crop of buds about every month; but seldom can one obtain a flower, as they are stolen as soon as they begin to show their dainty golden petals between the green "guards." I purchased two half-blown buds of it one day,—and oh! those deep golden faces came open in water and lived eight days on my stand, seeming to understand how I loved them, looking like beautiful children's faces as I changed the water twice a day. Nothing will give better returns for intelligent care than a collection of



LA PLAZA DE ARMAS, GUAYAMAS, SONORA, MEXICO.

city, among the mountains, of about 8,000 inhabitants; Mexicans,—a mixture of Spanish and Indian blood intermarried. Spanish is the language spoken entirely. The few Americans here are railroad men, or those who are here to escape the rigors of a New England winter,—like the writer. There is no natural vegetation whatever, save the scrubby cactuses and thorny brier-bushes on the mountain side. In the central part of the town is a large plaza, where orange and lime trees make the evening air delicious with the perfume of their flowers; but the fruit is worthless. There are hibiscus, oleander, lantanas, and an abundance of roses cultivated there, but a man is kept busy watching against the depredations of the natives, who slyly appropriate everything in the

the climate is delicious, and one can sit in the plaza among the flowers and listen to the hum of the bees, and the little sharp chirp of the green-crested humming-bird, and fancy enjoying a June day instead of January and February. But the plants are scraggly, and the oleanders and the hibiscus make one's heart ache, as it is realized what they might be, poor things, were they trimmed up into shape, and pruned into nice, erect trees. Every time I go through the plaza, the one ill-shaped, much-branched-from-the-bottom oleander, and two plants of hibiscus that look as though they have curvature of the spine, appeal to me to cut away the undergrowth and lower limbs and give them a stout stake till they can get erect.

There are many immense crinums, with

roses, outside or indoors. Why some people have such a time with them I don't know; I've even taken up hybrid perpetuals and bloomed them in a sitting room window in January, February and March, with no more care or trouble than my geraniums. I speak here of General Jacqueminot and Marshal P. Wilder, both of which for me did well indoors.

When one is in a place like this, away from all the home surroundings and the pleasant accessories of civilization, the blessings of life are appreciated as never before. When we see the ignorance and prejudice that prevail here we feel to thank God for a free country and educational privileges. One of the greatest of God's gifts is the beautiful flowers; and may His blessing rest upon everyone who helps to disseminate knowledge of their culture, and place them at prices within reach of all.

MRS. JOHN AULD.

Guayamas, Mexico.

SPRING AND SUMMER IN MY GARDEN.

IT may be well to give some idea of the situation, climate and soil of my place, not that these of themselves are important, but to show others who may inherit a cold soil and bleak locations that plenty of bloom and beauty are easily within their reach; that without water works, hose, syringes, tile drainage, greenhouses, hot beds, coldframes, thermometers, rollers, lawn mowers, watering pots, trowels, weeders, etc., etc., they can have a world of flowers; that no grounds would be large enough to contain the list of plants which laugh at low mercury, and are glad to bring you in blossoms if you will allow them to do so. The floral magazine becomes more and more technical, the coldframe grows to a greenhouse, and higher flights are attempted every year, till it almost seems that to surmount huge difficulties is the only thing in view. But if flower growing is to become as universal as I wish it to be, it must be by simple and cheap methods; so in the hope that some may profit by being told what can be raised, and how, without many appliances or much expense, these papers are written.

My latitude is that of Boston, Mass., the altitude perhaps 1,500 feet. The shad flower, *Amelanchier Canadensis*, is from fourteen to twenty days later here than it is beside the Hudson River in the same latitude; the Osage orange, which I am told bears its fruit in the lower Genesee Valley, fifty miles further north, kills down to the snowline every winter, though the mercury seldom gets below 20°. Down at the village, in the valley, it will mark six to ten degrees lower on a still night, so they get frosts both in spring and fall that do not affect us. The bed rock of this region is the Portage or Chemung shale of the Devonian era. An infinite number of layers of hard flagstones and soft earthy shales piled upon each other; so, away from the moraines and alluvial beds near the larger creeks, the soil is mostly clay, full of stones, and passing at a depth of a foot or less into a tough yellow subsoil, full of stones and pebbles with no drainage downward to amount to anything. The books all agree that no lawn-making, or gardening of any kind, can possibly be done on such ground unless it is tile drained—but the books say lots of things. Not an acre in the town—or any other neighboring town, is tile drained, so far as I know. On part of my ground a stratum of fine clay without stones, (decomposed

shale,) comes near to the surface, but it is no better or worse than the stony soil and subsoil that make up the rest. The dump made by digging the cellar grows plants as well as the rest of the ground, even the shale rock, dug out of a thirty-foot well, slacked and became good soil in a few years.

The site slopes to the north, and so I dug into the hillside above the house to level the ground. This level plat was of course dug far into the subsoil, and I made flower beds against the wall by merely dumping

and shallow stirring are pretty good substitutes and much cheaper. The manure dirt, before mentioned, accumulates in the cow yard; it is half or two-thirds earth, it never seems to lose its dark color and its power to forward vegetation. I hoe it up into heaps, now and then, and the main movement garden-ward is in the fall after frosts have killed everything, though it is accessible at any time in warm weather and a large quantity is brought in spring.

Burning wood, altogether, for the house fires, it is apt to come in logs from the woods, and in spring there is quite a deposit of chips, sawdust, etc. This material is cleaned up every year and it comes amiss to no plant, shrub or tree. Wood ashes are of no use on my soil, that I can see. I scatter lots of them about but it is merely to get rid of them. My gardening tools are a hoe, a potato hook (used as a rake), and a wheelbarrow. There is a pick and shovel somewhere about, but these are not in much use. The farm contains 100 acres and I am supposed to do six days' work per week in the field, so it is only at odd moments that I can attend to flower growing; a few plants set out or seeds sown to-day, a little hoeing or mulching tomorrow. Every moment of leisure is thus used for a while in spring, but garden work practically ceases as summer comes on, and the ground becomes covered with annuals and perennials. Dead stalks cleared away, a little grass cut, a few weeds pulled,—such work is about all that is done until fall, when roots are to be divided and reset, new beds made and planted, and manure dirt brought. I never have had any insect preparation or commercial fertilizer.

E. S. GILBERT.

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GILIA BRANDEGEI.

This plant is a contribution to our gardens from Colorado. It is a native of that State, in the Rocky Mountain region. It is a hardy perennial, sends up a flower from six to eight inches in height, and, according to a writer in the *Journal of Horticulture*, from which our engraving has been reproduced, all through the summer and autumn gives a succession of bright primrose-yellow flowers.

Planted out in a position where it can be liberally treated, it attains a large size for a *gilia*, forming in one year a clump from one to two feet in diameter. The young growths, or side shoots, may be struck readily under a hand-glass in August or September.

With the exception of this species and *G. aggregata*, which is a biennial, all the other species and varieties, about two score, of this genus are annuals.



GILIA BRANDEGEI.

barnyard dirt and chip manure until it was six inches or so deep, never disturbing the underlying clay at all. And the *Amaranthus gibbosus* last year stood six feet high and if erect would have been twice that or nearly so, while the petunias made a flagged walk impassable, and about the same thing will happen this year in the same place, together with a display of calliopsis, single balsams, portulacca, asters, morning glories, annual phlox and others. Deep tillage and under drainage are, perhaps, good things, but surface manuring

THE DAISY PEA.

THE Daisy Pea is a variety that has already been brought to the notice of our readers, and many of them, we hope, have raised it and can confirm the opinion we express of it. But it is a sort with so many good qualities that we think the public is being done good service in again calling attention to it and presenting an engraving of it. The plant is vigorous and grows about two feet in height. The *Journal of Horticulture* says of it:

There are far too many peas, some of them introduced as distinct fixed novelties, which are only selections from old ones, that after a season revert to the parental type. It would be advantageous if the list were curtailed, and no matter how hard it had to be compressed Daisy would of necessity remain.

It is beyond a doubt one of the finest dwarf early Marrowfat peas in cultivation, and it is one that ought to be grown in every garden whose owner appreciates peas. Sturdy and branching in habit, requiring no stakes, coming early and remaining late in profitable productiveness, giving green peas of considerable size and of best quality, it is one of the very front rank.

In our own cultivation we have proved it to be all that is here said of it. It is an excellent variety for the private garden, and for a market variety we believe it will take the lead of all market garden peas.

* *

PLEASANT PARAGRAPHS.

Keep a gardening diary.

Try gardening for insomnia.

I saw a few white "May-bugs" last year. Are they not unusual?

Too much has not been said in praise of the Comet aster. The flowers are lovely; in every way all that is claimed for them.

Fifty cents worth of chrysanthemum seed, and several dollars worth of time produced last year one plant with inferior flowers. Moral: Buy plants next time.

I saw a curious geranium not long ago, the florets of which were dissimilar; some being scarlet, others white with a distinct dark ring around the eye. All were large and well formed.

Young folks, when you go into the garden this summer, take along your pocket microscopes. Some of the smaller flowers will surprise you by their beauty,—and so will some of the bugs.

The custom of making little presents of seeds and dormant plants at Easter is visibly growing, and a very pretty one it is, embodying fully the Easter idea—and adapted to all sorts of people, all distances, and all purses.

Clematis must have a sunny location;

also one that is permanent, its very peculiar manner of root-growing rendering it impatient of removal after the plants become large.

Why should giving or receiving of seeds, bulbs, or cuttings be uniformly a pleasant matter, and the "exchanging" of similar articles disappointing? As soon as the "business element" enters in "the party

texture, and lilies of the valley more generous in bloom when grown in sunny places. Many other plants usually relegated to shady corners will gratefully respond if given a little more sunshine. In this connection, I would like to ask if any treatment, except boxing, will cause the white day lily, *Funkia alba*, to flower freely.

A recent article on the Honey Locust again reminds me of a locust which was grown as an ornamental shrub in New England forty years ago, and called by that name; but that variety had long clusters of large rose-colored flowers, that as I remember were not especially fragrant. I have often wondered why it is not seen in the west. Surely our hedge locust cannot be the same shrub, treated differently.

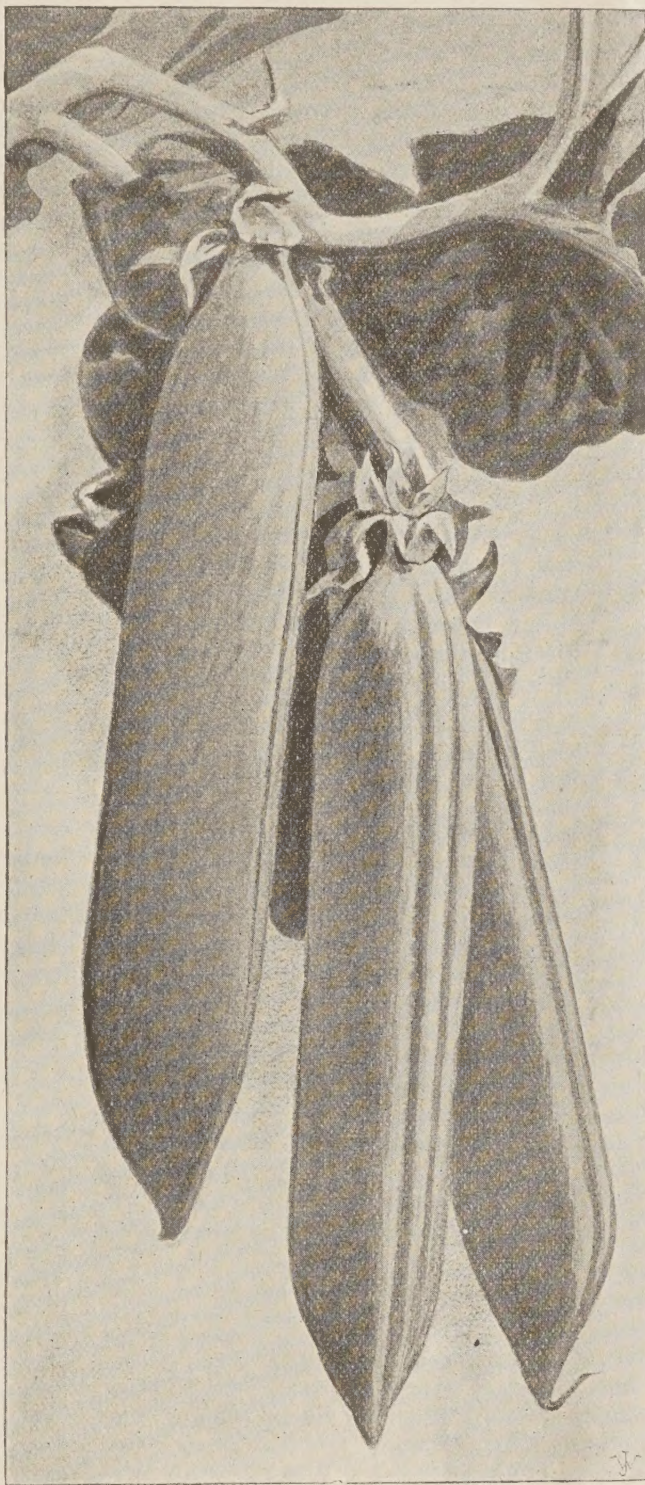
Every year I try something new and in this way make many desirable acquaintances. Such has been the snow-white valerian, or hardy centranthus, a choice perennial greatly superior to, and in root, leaf and duration of bloom wholly unlike the old garden heliotrope which often passes under the same name. Last summer the small-flowered clematis bloomed late, so I tried using the long slender branches of this pure white valerian for the same purposes with charming results. It combines in a lovely way with white or pink roses and white Canterbury bells.

A north-west corner is not an easy spot to utilize, but if the soil be dry and mellow and roots of trees do not interfere, a bed of *Candidum* lilies with English violet edging will do well. In two or three years they will increase to the crowding point, exactly what both delight in, and the violets will bloom freely at the proper season. This lily-bed is also a good place in which to sow forget-me-nots. As violets increase by runners, they will soon encroach upon the lily-bed unless barred out in some manner. I made a tight wall of new shingles, sawing off the thin end, and driving them into the earth nearly out of sight.

Something thicker might be better, but shingles are everywhere obtainable, and also easily removed. I like them better than cobble-stones or bricks, because they are out of sight.

* *

ORCHARDS, vineyards and market gardens enriched by turning in green crops of crimson clover, should also be supplied with potash and phosphoric acid. Muriate of potash and superphosphate of lime are proper materials.



THE DAISY PEA.

of the second part" seems to be tempted to be a little dishonorable.

At the close of one of the autumn fairs, I overheard an acquaintance say to her husband, "My farm has paid better than yours this year, for the size of it." "Yes," said Agricola, "It has." Her "farm" was only a small flower garden, but she had taken "a hat-ful" of premiums.

I have found pansies more velvety in



ROCHESTER, N. Y., JULY, 1897.

Entered in the Post Office at Rochester, N. Y., as second class mail matter.

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(formerly conductor of *Popular Gardening*).

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\$1.00 per agate line each month. Preferred position 25 per cent. extra. Reading notices \$1.50 per line.

Length of column 10 inches. Width of column 2 1/4 inches.

The last forms close promptly on the 10th of month preceding date of issue, *i. e.* January issue closes December 10th. Get orders in early.

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Obituary.

The death of John Saul, of Washington, D. C., occurred on the 11th of May, in his seventy-fourth year. Mr. Saul, as a nurseryman and florist, has been for many years very favorably known throughout the country. He was a well-trained gardener, and came to this country in 1851 and went to Washington. There he entered into an engagement with the United States government as a landscape gardener, and in that capacity laid out and planted the grounds of the Smithsonian Institute, Lafayette Square, and other public squares of the city. He afterwards planned and planted private grounds. In 1852 he purchased the piece of ground where he built up his nursery trade and occupied for the rest of his life. He was honorable and reliable in his dealings, a useful and highly respected man in the community, and beloved by his family.

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We here record the death on the first day of June, of another person who had made his mark on American horticulture. The name of Robert Douglass is well known throughout the country, but better at the west than the east. Mr. Douglass was a native of England, but lived in this country over fifty years. Since 1844 he lived in Waukegan, Ill., where he had built up a nursery business. His work has been mostly that of raising forest

trees from the seed; he has raised and disposed of millions of small trees, both deciduous and evergreen, and the prairies of the west have been clothed with his trees, and thousands of acres have been planted with them and are now growing for their timber. Mr. Douglass was a man of genial disposition, a lover of nature, happy in his life work, an authority on trees and forest planting, and a specialist in regard to evergreens. His age was eighty-four years.

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The Cone-bearing Trees.

Under the general title of "Coniferales" Mr. James McPherson, the well-known landscape gardener of Trenton, N. J., commences a series of papers on the cone-bearing trees, with special reference to their adaptation to planting for ornament or as objects of interest on lawns of moderate and large size, parks and public grounds. These papers are to be published at intervals, and embellished with engravings taken from life.

The engraving of *Welwitschia mirabilis*, in the present issue, is a reproduction, somewhat reduced, from Kerner's "Natural History of Plants," as translated by Oliver. The original sketch was made by the botanical explorer, Welwitsch, at the time (less than forty years since) of the discovery, and may be considered an accurate representation of these strange plants in their native habitat. The work which has been here referred to, says in regard to the *Welwitschia*:

The summit of the plant never reaches far above the surface, and it bears two huge leathery leaves, which sprawl on the sand on either hand. Actually four leaves are produced,—the two cotyledons, which fall away whilst the plant is still young, and an additional pair placed at right angles to the cotyledons and persisting throughout the life of the plant. These two leaves grow continually at the base, whilst their apical regions become tattered and broken.

There appears to have been a misunderstanding even by well-informed botanists in regard to this plant. LeMaout & Decaisne, in their "Traité Générale de Botanique," as translated by Mrs. Hooker, state:

It bears no appendages but its two cotyledons, which last throughout its life, *i. e.* more than a century, and in time grow to an extraordinary size, attaining six feet in length and two to three feet in width; they are green, very coriaceous, and torn by the wind into numerous segments which spread out upon the earth.

The probability is that Kerner's statement is the correct one, and that two leaves are formed besides the two cotyledons. Of course Kerner knew of the statement of LeMaout and Decaisne, and his more recent work has enabled him to present the subject more correctly, although both parties derive their information in regard to it from the same authority,—the Monograph on the *Welwitschia*, by Dr. Joseph Hooker.

Sachs has a referenc to the "two leaves" of the *Welwitschia*, and if these

appendages were cotyledons so critical a writer would have mentioned it.

That the plant will ever be raised in this country is extremely doubtful, but if it ever should be, it will undoubtedly be in the Arizonal regions suggested by Mr. MacPherson. Next month we will give our readers a description, by a French visitor, of the specimens of *Welwitschia* preserved at the Museum of the Kew Gardens, at London.

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Cause of Sweet Peas Dying.

In Bulletin 127 of the Experiment Station at Ithaca, N. Y., entitled "A Second Account of Sweet Peas," issued this spring, notice is made of complaints sent in last season of plants dying after having made several inches of growth.

Inquiry revealed the fact that in every case the plants had been frequently watered from a watering pot. Just enough water had been applied to keep the ground soggy, and the plants had damped off. Plant lovers should remember that one good watering which wets the ground clear down, is worth a dozen dribblings. It is rare that a sweet pea bed should be watered oftener than once a week in good soil; and if the seeds are got in early, a frequent stirring of the surface soil with hoe or rake is better than watering at all.

This is good advice, and if followed there will be less of the trouble complained of.

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Favorite Flowers of Garden and Greenhouse.

This is a new work on flowers, published in London and New York by the firm of Frederick Warne & Co. The work is edited by Edward Step, F.L.S., (author of "Wayside and Woodland Blossoms"); the cultural directions edited by William Watson, F.R.H.S., assistant curator, Royal Gardens.

The entire work will be illustrated with upwards of 316 colored plates printed in the finest style of workmanship, from designs drawn and colored with minute care from living plants, showing their natural size; details of seed, seedling, root, leaf, blossom and section, being often included. The letterpress of the complete work will consist of about 700 pages of descriptive matter, indexes, etc. This high-class work will be completed in four volumes, and will cover almost entirely new ground. The text has been written primarily for the garden lover and amateur, although the professional gardener will find much to interest him.

The first volume has been received and two more are almost ready to be sent out; the whole will be completed during the coming autumn. The plates are well printed lithographs made from accurate drawings and paintings. The descriptions and cultural notes of the plants are brief but good, and cover the essential points. The work is a valuable and beautiful contribution to the library of the gardener and the garden lover. It is issued in different styles of binding, and all particulars in relation to it may be learned by application to the publishers, at New York.

Letter Box.

In this department we shall be pleased to answer any questions relating to Flowers, Vegetables and Plants, or to publish the experiences of our readers. EDITOR.

Ampelopsis Seeds.

Why do I not succeed with seeds of Ampelopsis Veitchii? I sow them in pots in a warm room and keep the soil moist, but they fail to germinate.

Hallowell, Me.

A. S. B.

Sow fresh seeds of Ampelopsis Veitchii in autumn in a bed out of doors. They will germinate in the spring. If the seeds are kept over and planted in the spring they may remain until the following spring before coming up.

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Calla.

I would like to know how to make a calla lily bloom. I have some nice ones that grow well but don't bloom.

Marseilles, Ohio.

MRS. J. E.

Plant the callas out in the garden and leave them there without attention for the summer. Early in September take them up and pot in rich soil, water and take into the house. Keep them well supplied with water at all times. They must have a place close to the light.

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Ants on Lawns.

Will you kindly publish in the MAGAZINE a remedy for ants in the lawn? We are much troubled with them, especially the large black ones.

Oradell, N. Y.

M. D.

Bisulphide of carbon placed in the ground at or near the ant-hills will destroy the insects. Take a dibble or sharp stick and thrust it into the ant-hill, making a hole six or eight inches in depth; into this pour about two tablespoonsful of the bisulphide, and then press the soil together at the surface to close the hole. The fumes of the liquid will penetrate the soil and kill the ants. This is the most effective of all the means that have ever been employed for this purpose.

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Plants for Names.

A box of specimens for names was received from J. V. W., of Gretna, Neb., containing three specimens of shrubs and three of roses. The roses fell to pieces as soon as taken out of the box. Nos. 1 and 2 of the shrubs are very near alike, and possibly the same, or they may be different varieties of some kind of prunus. Our correspondent says they have been planted five years and have not bloomed, and enquires if they are worth keeping. As they are hardy, and evidently thrifty, we should keep them, and probably they may yet bloom. No. 3 is the purple fringe tree, *Rhus cotinus*.

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Rex Begonia.—Farfugium.

1—I have just received some Rex begonias; please tell me if they require much water, or sunshine. What kind of soil is best?

2—I have a farfugium that is old; I can't make it grow nicely,—it sends up small leaves, and seems to rust; I have tried different treatments, without success. I keep it in a rather shady place in the conservatory. Will you tell me what to do with it?

New Lisbon, Wis.

L. A. S.

1—Rex begonias require water accord-

ing to circumstances. When the soil appears to be dry give enough water to wet it through, and then wait until it shows dryness again. Place the plants in a good light, but not in the sun.

2—Better throw away the old plant of farfugium, and procure a young, thrifty one.

++

Cannas.

What had I better do with my canna plants? They are in a three-quart crock, eight of them,—five are quite tall, and two have blossomed and gone to seed. They have been growing in the house all winter. What must I do to keep the same stalk blooming, and had I better put them outdoors this summer, or leave them in the crock? Had the bulb that I want for house culture next winter better rest this summer, and how shall I keep it?

Traverse City, Mich.

MRS. M. D. K.

Turn the plants out into the ground for the summer. Take them up just before frost comes and partly dry them off, and then place in sand in a light frost-proof cellar. If you want to start one of the plants in the house, wait until about mid-winter or the first of February before doing so.

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Date Seeds.—Umbrella Plant.—Cape Jasmine.

1—How are date seeds started?

2—How is the umbrella plant propagated,—from seeds or cuttings?

3—What is the matter with my Cape Jasmine? Some of the leaves are turning yellow and dropping off and occasionally a branch dies.

Towanda, Pa.

M. E. W.

1—Date seeds can be planted in pots or boxes; the soil must be kept moist. But the date palm is not particularly desirable for house culture,—in fact it is one of the least desirable, and we do not advise raising it for that purpose.

2—The umbrella plant is easily propagated by root divisions.

3—It cannot be said what is the trouble with the Cape Jasmine. Look to the drainage of the pot and see that that is free.

++

Iceland Poppy.—Hydrangea.

I read the MAGAZINE with great interest, particularly the Letter Box. Would like to call the attention of other readers to the value of the Iceland poppy as a spring flowering plant. I raised a few plants last year as an experiment, not really thinking they would survive our hard winters; but I was surprised, when what little snow we had disappeared, to find every plant fresh and green. They began to grow as soon as the frost was out of the ground, and now (May 19th) I have been plucking the delicately frilled yellow blossoms for more than a week. The plants are blooming abundantly, and are my earliest flowers, as my pansies all winter-killed, and it is too early with us for lily of the valley, etc. Shall endeavor to have them year after year.

I have an indoor hydrangea just finishing bloom for this spring. How shall I treat it? Will severe pruning now benefit it an other year?

Lebanon, N. H.

N. M. B.

In regard to hydrangea see answer to another inquiry in this issue. Do not prune the plant now, nor until ready to start new growth next winter.

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Soil and Treatment for Orange and Hydrangea.

Please state through the MAGAZINE what sort of earth is best for both the Otaheite orange and the Red Branched hydrangea, and when must they be rested to bloom.

MRS. R. P. J.

Neither of these plants is very exacting about soil. A light, rich soil, such as used for most greenhouse plants, will suit them.

The hydrangea can be kept in a cool, but light, place from mid-autumn until after the winter holidays, and be sparingly watered during that time. Then give more heat, say 60° to 65°, and syringe the plants and supply water more freely, when it will start to make a new growth and later to bloom.

The orange can be kept in a cool temperature and in a good light, and be given comparatively little water from November to March.

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Gooseberry Caterpillar.

Can you give instructions about the gooseberry caterpillar, and how to kill it and save the leaves and fruit? I had to give up gooseberries for some years on account of it, and now it attacks the red and white currant.

W. K.

King's Cove, Newfoundland.

The currant or gooseberry caterpillar or worm is easily destroyed by means of white hellebore dusted on the leaves of the plants, or it can be mixed with water and sprinkled on them. Commence to use it early in the season, as soon as the leaves come out, or as soon as there is the first appearance of the caterpillars, and keep up its use while they continue to come. By the careful and continued use of this substance the plants can be kept nearly or quite free from the pest and there will be no harm in any way from its use.

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Care of Palms.

How should palms be cared for? How much water do they require? Should they stand where they will get light, but not sun? How should they be cared for in the summer? Please tell anything about them which should be known by one who tries to grow them.

Crystal Run, N. Y.

E. S.

Palms in the summer can be set in the open air, in a shady place protected as much as possible from heavy winds, or they may stand on a shady veranda. In the house they can stand where they will receive a fair amount of light, but they do not need the direct sunshine. When watering, give enough to wet the ball of soil all through, and then wait until there is an indication of dryness before supplying water again. Wash or sponge the foliage frequently and keep it free from scale insects. If any scales are present they can be destroyed with a brush dipped in alcohol, and then they may be wiped or brushed off. Palms are not troublesome to care for.

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White Sweet Pea.—Azalea.

1—Is the white sweet pea more difficult to grow than others?

2—Can you tell me what treatment to give my azalea? It is quite a large one,—I have had it two winters. It has a white growth all over it; is it a fungus growth, and what is the cause? The top looks green and healthy, but the lower branches are quite bare of leaves, and this little white thing can be picked off, showing pink underneath. The pot is quite full of roots,—should it be repotted?

Monroe, Mich.

L. B. N.

1—Seeds of white sweet peas are not more difficult than others to germinate.

2—This plant of azalea is covered with a young brood of coccus or scale insect, and the best thing to do with it is to burn

it up at once. Also examine any other hard-wooded plants and palms, and see if the insects have spread on them. The insects can be routed by brushing them over with alcohol, but in the case of this azalea, from the account given of it, it will be very difficult to make a respectable plant of it, and, even if it can be, it would require care and attention that would be worth ten times as much as the cost of a healthy plant.

++
Freesias.

Please tell me how to manage freesias. I have put them in a sandy soil and in a rich loam, in earthen pots and in tin; put them in a mass and separately; tried shade, and plenty of sun and water,—and in all cases they grow weak and refuse to bloom. I believe they dislike me and won't grow for me; I am sorry to be so disagreeable to them, and wish very much that I could please them. MRS. E. B. H.

Bridgewater, Mass.

Here is a successful way of raising freesias as window plants that was sent in by a successful amateur, and published in these pages a few years since:

Plant an inch deep in rich soil, place them in the dark until they have sprouted, then place next the glass in a south or east window. Keep the pots in deep saucers, and fill the latter with *hot* water every morning,—one great secret is to keep their feet warm. Many people do not give them enough water,—they require a great deal. If any remains in the saucer from the day before throw it out and give fresh. If water is poured on the soil it should always be warmer than the air. In this way I have an abundance of large, perfect flowers, the clusters sometimes remaining perfect for three weeks. As a last word, have good drainage and give plenty of heat and water.

These directions are good and worthy to be followed, and if bulbs are good the result should be satisfactory. As many as a half-dozen bulbs can occupy a five-inch pot.

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Plants for Dry and Hot Climates.

I send for few blackberry bushes for the reason that I'm informed they will not grow here on account of it being so hot and dry. If these few do well I will order a quantity. I take this opportunity to merely suggest that if you would devote one page in your Guide to plants and flowers especially for hot and dry climates, in my opinion you would greatly increase your business in Texas. There are many here who desire flowers, but don't know the kinds to obtain that will stand the climate. Sometimes it doesn't rain here for six months,—and yet there are some very pretty gardens. I have plenty of water and irrigate my premises. Roses do well here. I have spent over \$100 trying to ascertain what flowers are best for this country, and have not found out.

Now with your great experience and knowledge of flowers your opinion published would be valuable.

Eagle Pass, Texas.

C. R. P.

We are pleased to have this letter, but cannot accept the compliment which our correspondent offers. Our "great experience and knowledge" of plants in dry, hot climates will count as nothing in comparison with the information he, himself, possesses on this subject; and, now, the only way to properly terminate this matter is for Mr. P. to favor us with one or more letters, giving his own experience and observations of gardening in Texas, that we may publish. Such letter or letters we hope, and shall expect, to receive in due time.

++
Plants from Seeds.

I want to ask through the MAGAZINE if hyacinths, tulips and polyanthus narcissus have seeds, and how long they will take to bloom? What color is the freesia? Will roses grow well from seed? Can you

get fine plants of the double dahlia from seed? Do gloxinias grow well from seed? M. G.

Halsey, Ore.

All the plants enquired about can be raised from seeds, but an inexperienced person cannot raise them. The bulbs and roses require several years to bring them from seed to bloom, and then perhaps their flowers might be so poor that they would be undesirable. Raising such plants from seed is the business of the skillful florist and he has thousands of poor seedlings to one good one. Our enquirer should purchase bulbs, and of roses the plants of good varieties; these are all sold at low prices. Gloxinias may be raised from seed, but it requires experience to raise them successfully. Dahlias are raised from seed without much difficulty, and handsome single flowering plants are obtained. Only the expert grower can raise a good variety of double dahlia, and in a thousand plants he may not get one good one. M. G. should procure such seeds and plants as are advised in seedsman's catalogues.

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Jasmine.—Budded Tree.—Worms.

1—Will you kindly inform me as to the proper care of a jasmine in Iowa? What treatment brings best results? Do they bloom the first year?

2—If a budded tree has the grafted bud rubbed off, and yet buds come out in other places, are they of any account and what will they be?

3—I have a beautiful tulip tree. Last year large green worms,—from one to two inches long, and as thick as a lead pencil,—clung tightly to the leaves with what seemed little feet; they would completely devour a leaf in a short time. There was no nest or place where they seemed to come from. Should they appear this year, what treatment would you advise? MRS. J. E. C.

Iowa Grove, Iowa.

1—None of the jasmines are hardy in Iowa, and this plant, whatever it may be, should be kept in the pot. It can be plunged in the ground, in a sheltered spot. Be careful to look after its watering regularly. A framework can be provided for it to run on, if it needs support.

2—If the inserted bud is broken off, rubbed out, or otherwise destroyed, that is the end of that variety. Any other buds that push out are of the same variety as the stock.

3—Such worms as those on the tulip tree should be knocked off and killed; or if numerous, spraying with Paris green, the same as for apple trees, would kill them. It is probable that spraying them with kerosene emulsion would at least cause them to fall to the ground, where they would die.

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Failure of Easter Lilies.

I bought two Easter lily bulbs of you last fall, and both grew nicely. The first one I brought to light formed three buds, and I took much pains that nothing should harm them in any way; but when the buds were a little more than an inch in length they blasted. I had noticed that some of the lower leaves had grown a little yellow,—I do not know the cause; can you tell me? The second lily had four buds and the whole plant grew nicely and thrifty in every way, but when the buds were two inches long they also blasted. Is there any danger of giving too much water when the soil is getting dry, or not watering enough? I was quite discouraged, and if you can give me a little instruction and tell cause of failure, through the MAGAZINE, please do so.

My daffodils were so lovely I mean to have an abundance next fall, if I can. The other narcissi did

beautifully also, and my hyacinth was grand,—I counted seventy-five florets on the spike. Was not that enormous? K. J. S.

Without knowing all the facts in this case, the probability is that the plants were pushed too hard,—that is, they were kept in too high a temperature. They ought not to be given a higher temperature than 60°, and, as the buds begin to form, some liquid manure once a week will help sustain them. The degree of heat named above is quite sufficient all through the growing and blooming season; but if when the buds are fully formed, and the plants are strong and vigorous, it is desirable to hasten blooming a few days only, a little extra heat may be given. As a rule, however, one should be cautious of a high temperature with lilies.

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Propagating Currants and Gooseberries.

I have a few currants and gooseberries growing, and I might more successfully increase from them if I knew exactly how. I would be glad to learn how to increase by cuttings. MRS. F. G.

Glendive, Mont.

Take cuttings of currants in September after the new wood has ripened, as may be seen by having turned brown. Make them about six inches in length, from the new wood, removing the leaves. Plant them so that only one bud is left above the surface and they will take root in the the fall and be ready to make growth promptly in the spring. Some leaves or litter should be laid around them when cold weather comes on, to prevent them from heaving when the frost comes out of the ground.

Cuttings of the gooseberry are more difficult to root, but treated in the same way a portion of those made from our American varieties will root. But the better way to raise gooseberries is by layering. This can be done as early as the latter part of July. Draw the soil up about a bush and lay the branches partly down upon it and heap fine soil up over them, spitting it down well with the back of the spade to make it lie close to the wood. The leaves should be removed from the portions of the stems which are covered. Leave the plants earthed up in this way all winter and in spring level off the soil and cut away the rooted branches and plant them out to make a set of strong roots before final transplanting for fruiting. From the plant thus employed, (called a stool plant), another set of shoots will grow, and at the proper time in summer it can be earthed up, and thus an annual crop of plants be produced.

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Plants for Winter Window-garden.

Would like to begin to plan my winter garden now. Have two windows facing south in the children's nursery. Please suggest what to plant now, and how to care for the plants in order to have them in full blossom during the winter. I would also like the begonia Gloire de Loraine, and Phil Heile geranium. I enjoy the MAGAZINE very much. C. E. L.

Baltimore, Md.

It is a good time now to begin to prepare the window plants for winter. The begonia and geranium named cannot now

be supplied; probably they are not yet in this country. However, there are plenty of good begonias and geraniums. Of begonias we can particularly advise *Semperflorens rosea*, *Argentea guttata*, and *Argyrostigma picta*.

A good selection of geraniums would be Margaret de Layre, Meteor, Souvenir de Mirande, Mrs. James Vick, Madame de Luc, Perfection, Pink Gem, and Queen of the Whites Improved. Bijou and Marshal McMahon are desirable variegated leaved geraniums, and a rose geranium for its fragrance is desirable.

Abutilon Golden Fleece is an excellent window plant; *Anthericum vittatum variegatum*, *Aspidistra lurida variegata* are excellent variegated foliage plants. A good bulb or two of calla can be started in September. Jersey Beauty and Lady Cook are two good heliotropes. *Oxalis floribunda alba* and *O. rosea* are excellent winter bloomers. So also is *Solanum jasminoides grandiflorum*. *Mahernia odorata* is an excellent, free blooming, little plant with yellow, sweet-scented flowers. Of roses, Clothilde Soupert and Pink Soupert can be recommended. And then about the first of October a stock of bulbs should be secured and potted,—Dutch hyacinths and tulips, Roman hyacinths, narcissus, freesias, and other bulbs.

All of these plants are excellent for the winter window-garden.

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Grevillea.—Wormy Cherries.

Should a grevillea, which is growing rapidly, be pinched back to make it branch, or be left to continue its growth straight up?

For two years past the fruit of a fine cherry tree has been very wormy; is there any way to prevent it this year? Are the eggs deposited in the fruit early in the season, or after it begins to ripen?

We not only enjoy the MAGAZINE, but find it very helpful.

SUBSCRIBER.

Either course can be taken with the grevillea, according as one prefers to shape the plant. If pinched back it becomes more compact, and many will fancy it in this way.

The curculio deposits its eggs in the cherries soon after the blossoms fall. The remedy which has been depended upon for many years in plum orchards consists in jarring the trees early in the morning, while the insects are partly dormant, causing them to fall on sheets which have been laid under the trees to catch them; they are then destroyed. Within a few years past this method has been supplemented with spraying with Paris green and lime soon after the blossoms fall. The coating of lime-wash on the young fruit probably acts somewhat as a defensive armor. In the case of a single tree in a city yard, neither of these practices appeals very strongly to one's ideas. The writer once saw a tree well protected in the following manner: At the time of the falling of the flowers a large sheet or canvas was fastened over the top of the tree. Then during the warmer part of the day, when the insects are most lively, the hose connected with the water

works was fastened in an upright position in the tree, and the water through a spray nozzle was delivered in a fine spray all through the foliage and branches. When the tree was well moistened the water was shut off, and then in an hour or more was again started for a short time. After four o'clock it was not necessary to continue it. The rationale of this procedure is that the insects will not work in the wet, and the sheet overhead prevented the rapid drying of the foliage. The result in this case was a fine crop of perfect fruit unmolested by insects. After the stone in the fruit is formed, or hardened, the insects do not molest it.

RELATIONSHIP OF BIRDS AND REPTILES.

THE reptilian affinities of birds is an interesting subject to the philosophic naturalist. The difference between the highest living bird and the lowest living reptile is so great that it seems almost beyond the bounds of reason that a close relationship should exist between them.

It seemed for a long time that birds formed an isolated group and that they therefore furnished an apparently plausible argument against the theory (?) of evolution. But now, in the light of discoveries which have been made more recently "we can without overstraining the imagination or violating our reason, picture modified forms in which the reptilian and avian types would blend so perfectly that we would find it impossible to say, 'At this point, the line between birds and reptiles must be drawn.'"

Fossil remains have been found of birds with teeth and long bony tails, and also of reptiles, with wings; great monsters they must have been, veritable flying dragons.

In 1861, in the lithographic slates of Solenhofen, Bavaria, a fossil feather was found which was the subject of considerable discussion among naturalists. Again, in 1862 a curious skeleton was disinterred from the same place, in which most of the bones exhibited the marks of a true bird; but the skeleton had a most remarkable tail, containing twenty distinct bones. From each of these bones proceeded a pair of well developed feathers, similar to the single feather which had been previously found. Here was an animal which could be called a bird-like reptile or a lizard-like bird, with equal propriety. Its twenty caudal segments or vertebræ were a bar to its entrance to every existing family of birds, while it was equally out of place among reptiles. On account of its feathers this curious link in the chain between reptiles and birds was called *archæopteryx*. It was about as large as a dove.

The discovery of this remarkable fossil, possessing characteristics so decidedly both reptilian and avian has thrown much light on the subject of gradual development of higher, from lower forms.

MRS. W. A. KELLERMAN.

CRIMSON CLOVER IN MARKET GARDENS.

There is no doubt that crimson clover is yet to play a great rôle, not only on farm lands, but in orchards, vineyards and market gardens. Our personal experience with it as a fertilizing crop in the vineyard has enabled us to advise the readers of this journal for several years past to make use of it for such purpose. A market gardener, Mr. W. H. Jenkins of Delaware County, of this State, is now using it as an enriching crop on his celery fields. He has been using large quantities of stable manure but found it very expensive. He then says:

For several years I have been studying to find some way to avoid handling so much manure. I have always obtained good results with stable manure, and did not want to risk putting in my crops without it. I am now satisfied that I have found a use for crimson clover in the celery field, in connection with chemical fertilizers, by which I can save a large part of the expense of stable manure. One of my main crops is early celery, which is marketed in August and September. This early crop is blanched with boards, and I am through cultivating it by the last of July. Before the last cultivation, I sow crimson clover between the rows, and then set up the branching boards. I am now able to irrigate my celery field, and when the water is turned on the rows, the clover germinates in a very short time. The irrigation is continued until the celery is fully blanched. As the clover is irrigated at the same time, it gives it a good start. The land has been heavily manured for several years, and in this rich soil the clover grows very rapidly, and it costs nothing to irrigate it at the same time that I am irrigating the celery.

The early celery is removed in August and September. In doing this no earth is dug up. The blanching boards are taken down, and the celery cut from the rows. This with the treading that is necessary in taking up the celery injures the clover but little. The clover has now two to three months to grow, and makes quite a large growth before winter. This plan will work equally well, I think, with early cabbages, peas, beans, sweet corn and all garden crops which are grown in rows and removed early in the fall. I propose to plow this clover under which is grown on the celery field, and before planting the land in the spring, instead of applying stable manure as usual, I shall use potash and phosphoric acid; and if I think the plants need more nitrogen, I shall dissolve some nitrate of soda in the water tank from which the water is taken for irrigating them, and feed it to them as they need it.

I had often thought of using clover to fertilize my market garden, but I supposed that to grow a crop of clover I must lose the use of the ground one year for growing garden crops. Now I think crimson clover may be used as a catch crop to sow between the rows of early vegetables to plow under either in the fall or the following spring, and still keep the land to work growing garden crops every year. Some of my land is worth \$1,000 per acre, and I can hardly afford to grow a grass crop on it.

The plan outlined, we think, will be found quite feasible, and it is only a question of time that crimson clover will be generally used as a fertilizing crop.



Liquid manure is a lively garden helper; it acts at once.

If done at once, it is still time to get in some sugar corn for late crop.

Nature sprinkles her plants with dew at night,—a hint to every window-gardener.

To have flowering peas in bloom all summer, see to picking every bloom every day.

When friends remark that their yellow roses are "wearing out," mention starvation.

In setting cabbage and celery plants if the roots are kept wet the sun will not hurt them.

The person is to be pitied who does not know the soothing companionship of a large tree.

A good stroke. Save a thousand weeds next year by cutting one burdock, thistle or plantain this.

Have we at last a mildew-proof gooseberry in the Columbus? The indications seem pretty strong that way.

Currant fertilizer. Wood ashes have given me better results than stable manure; more fruit, less wood.—A. I. W., Lakefield, Ont.

Snowdrops. It is a good plan every third year to take up these bulbs in July, dry them and reset about six weeks later. The flowers will be the finer for such treatment.

Pot strawberries. In any case where the making of a strawberry bed was missed in the spring the matter can in a measure be mended now by setting plants that have been layered in pots. Better plant them before August 1st.

Red-flowered Dogwood. Of this novelty of a few years ago hardly too much can be said in its favor. In form it is like that universal favorite, the white dogwood; in color a charming red. It certainly has come to stay. Perfectly hardy.

Foliage to burn. The most satisfactory strawberry culture is that in which a bed is kept up only one season. If, however, you should conclude to keep it up longer, no better treatment can be given than to burn it over, mulch and all, soon after fruiting.

Some persons affect to call poppies too common. Such persons surely never could have made the acquaintance of those modest gems, the Shirley and Iceland poppies. I rank them second to no other flowers in my large garden.—G. E. H., Bucks Co., Pa.

One sharp jar is what is needed to bring the plum curculio to the sheets spread below. A spike driven in the tree,—or better yet, the long stump of a recently removed branch,—is the best place on which to strike the blow. The presence of the insect is apparent by the crescent-shaped mark made on the young fruit.

Manuring cannas. Since I have adapted the free-watering and manuring plan of growing cannas, the results are surprisingly grand. My plan is to form basins in the soil about each plant, fill with rich manure, and then water the bed every day. Varieties that formerly grew

five feet high now grow ten feet high, and blooms in proportion.—L. E. Lewis, Tallard Co., Conn.

Pansies. Plants are much like animals in one respect: Good results in raising them depend largely on good feeding. Take it in pansies,—do your's come small, while those of others astonish you by their size? It is in the feeding. With liberal provisions in plant food, some protection from hot sun and dashing rain, you will be able to raise pansies even in summer that will take the prize. Try it.

A fig tree would likely interest you. It will thrive and bear fruit anywhere in the north by being lifted in the fall and kept in the cellar until May, then planted out again. The fruit ripens in August. Young trees cost only about half-a-dollar apiece. To give an idea of the ruggedness of the fruit, it is only necessary to state that the India rubber tree is a species of fig. It is the easiest of plants to manage.

Cucumbers on ridges. For a number of years my practice has been to plant cucumbers, melons, and similar plants, on ridges manured in the row. The results are better than with flat culture or manuring in the hill. We plant



cucumbers from the about middle of June until through the first week, or thereabouts, of July. First, furrows are run across the field at five feet apart, and manure is scattered along the furrows (a in the figure); then two more furrows are plowed around the first, forming the ridge over the manure. After leveling down the top



the hills are made, four feet apart. We plant rather thickly, for the striped bug is likely to destroy some when young. But when the vines begin to run, every hill is thinned to three strong plants.—G. N. Lauer, Erie Co., Pa.

Pot Chrysanthemums. The plants of these glorious autumn bloomers should about now reach their blooming pots. This likewise is the time to stop the shoots for the last time; to defer it is to cause the flowers to set so late, that if the season is in any way unfavorable, the bloom may come objectionably late. As for applying manure water, don't wait until the flowers are set,—give it regularly after about two weeks. Judicious liquiding prevents the lower leaves from falling.

A disease of currant canes which causes the foliage to wilt, turn yellow and drop, and the fruit to color prematurely and drop, has received the consideration of a special Bulletin from the Experiment Station at Ithaca. A case is reported of one plantation of several acres of currants being reduced to one acre by the disease. The disease is of a fungous order. The only positive remedy is the removal entirely of diseased plants, which should be burned at once. No cuttings for propagation should be taken from plants in a diseased patch, even if some of the plants appear healthy.

English daisies. It seems not to be generally known that these little posies of the poets do well in America, on lawns that are somewhat shady and kept watered. By "English daisies" I mean the small, single-rayed species so common throughout Europe, and which come

readily from seed. In the case of my own lawn they have done nicely for more than twenty years. The plants bloom almost continuously; they take care of themselves, and in no sense disfigure the lawn,—quite the reverse, their modest little blooms impart a very pleasing effect. I would not part with them. Do not try them, however, unless you use water freely enough to keep the lawn always green, and there is some shade.—M. L., Buffalo, N. Y.

Lady-bugs. In an exchange we find an inquiry as to how to free plants from lady-bugs. Next we may expect someone to ask how can we best kill milch cows off from our farms. We had supposed that no reader of a newspaper was so ignorant as not to know that lady-bugs are a blessing to the plant-grower. Why, it is the business of their lives to destroy aphids and other destructive insects. This great government has done the laudable thing of actually importing some new species of these bugs from Australia, as an aid against the ravages of certain aphids on the Pacific coast. Don't kill a lady-bug. If they are on your plants it is because they are searching for plant vermin,—so young it may be, that your unaided eye cannot detect its presence.

Catching climbing cut-worms. Directions were given in a former number for poisoning cut-worms. Besides the common species of this destructive pest, there is one known as the climbing cut-worm, which besides feeding on herbaceous plants, will climb trees, shrubs and vines and do them much injury without its being apparent what the trouble is, for they feed at night. Miss M. E. Murtfeldt, the insect expert of Missouri, states in a recent issue of the *Rural World* how a few years ago the sweet-scented honeysuckles in St. Louis had all the flower buds cut off for several successive seasons, without anyone being able to make out the cause, or to provide a remedy. At last a shawl, or wrap of some sort, accidentally left on the ground near the honeysuckles, revealed the secret. On taking it up in the morning, a considerable number of cut worms were found in its folds. That was hint sufficient. Afterwards a gunnysack, much folded, some bits of old carpet and the like were scattered under the vines, with the result that the next morning nearly a hundred worms of various sizes were taken. The trapping was repeated until no more worms could be caught. The following season the same remedy was required; the third season scarcely any worms were there to be caught, and since then the plants have been entirely free from the pest.

Watering hanging-baskets. A veranda hanging-basket that is kept well watered and thrifty right through the hot weather is a beautiful sight. Too often baskets are permitted to gradually become dry at the center, and then it is difficult to again adequately soak the ball of earth by merely pouring water on the basket,—and a shabby-looking basket, showing many brown leaves, soon follows. Soil in hanging-baskets is usually packed quite solid at planting, and such earth, rounded over as it is in the common moss-lined basket, when dry will shed water almost like a duck's back. For some time we have adopted a course of watering our veranda baskets that is simply perfection. It is by soaking them twice a week in a tub of water as shown in the engraving. A heavy hanging-basket is not easy to take down, so we adopted the plan here shown. First, a small iron pulley, that costs about five cents, was screwed to

the veranda ceiling; over this is passed a strong hemp cord, with a ring at each end, into which rings, as they hang down, the basket hook is received, as shown in the cut at the left. To lower the basket into the tub placed on the rail directly beneath, is now an easy task. A second cord, with a hook at one end, is used, the hook being placed in one ring of the supporting cord, which ring is disengaged from the basket hook, the basket then being lowered into the tub, as shown in the cut at the right. In this way a heavy hanging-basket can be raised and lowered without difficulty.

* * *

THE STEM-ROT OF CABBAGE.

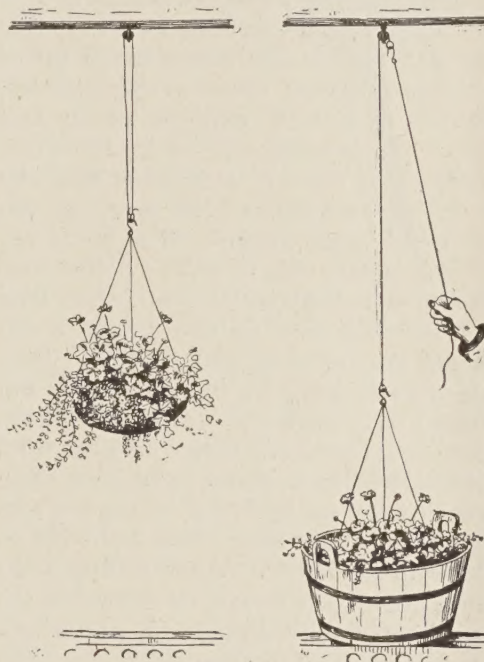
WITHIN the last few years a disease of the cabbage, hitherto unknown, has developed to an extent sufficient to cause some apprehension by market gardeners and truck growers. The disease is known as the "Stem-rot," so called because the stem is the point of attack, the disease starting in the stem and eventually involving the whole plant.

The complaints made to James Vicks Sons in regard to this disease, led them some time since to seek information in regard to it from the New York Agricultural Station, at Geneva, N. Y. As this station has a branch at Jamaica, Long Island, N. Y., in the region largely occupied by truck growers for the New York market, Dr. Jordan, director of the Geneva Station, referred the application to the Jamaica branch. In due time the communication given herewith was received from Mr. F. C. Stewart, Mycologist of the branch station. It will be seen that the writer considers the Danish Ballhead variety more subject to the disease than others, and suggests that it is possible that the bacterial infection, as it is a bacterial disease, may come from Denmark on the seeds. With the view of getting some light on this subject, Mr. Stewart's communication was sent to the principal Danish grower of this strain of seed, and from him has been received a letter which is here published. It appears from this letter that the disease is so little known in Denmark that they "have not even a popular name for it," and many growers assert that they have never noticed a case of it. There can be no probability, therefore, that the disease can have been brought from Denmark on the seed, and it is difficult to even suppose the possibility of deriving it from the genuine Danish-grown Ballhead seed.

But it will be noticed that the writer makes a very good point when he suggests the inquiry whether the diseased plants came from seed that was Danish grown, and stating that "Vast quantities, comparatively, of so-called Danish Ballhead seed are imported from Holland, Germany, and perhaps other countries." As a fact, he states that not a tenth of an average crop of the seed was raised in Denmark in 1895, "And by far the greater part of so-called Danish Ballhead cabbage grown in the United States in 1896 must

have been derived from other sources."

The Danish grower's answer, therefore, most satisfactorily disposes in the negative the supposition that the disease may have been brought in on the seeds derived from Denmark. That it may have come in, in this way, on seeds derived from other sources, still remains an open question; or it may yet be shown, as Mr. Stewart suggests, that it is the same form of bacterium that infests some kinds of weeds, or that produces the stem-rot of seed cabbage on Long Island, or a similar disease in cauliflower and kohlrabi. The practical point for cabbage-growers to notice, in this connection, is that the genuine Danish-grown seed is free from



AN EASY METHOD OF WATERING HANGING-BASKETS.

suspicion of the disease. The correspondence noticed is here given in full:

Branch Office of the
NEW YORK AGRICULTURAL EXPERIMENT STATION,
JAMAICA, N. Y.

During the past season the Experiment Station has received several complaints concerning a stem-rot disease of cabbage which did considerable damage in the western part of New York. In every case the Danish variety was said to be attacked more severely than any other. In fact, the Danish variety was the only one to which the disease was destructive, although some other varieties were affected to a slight extent.

The name "stem-rot" well indicates the disease. Affected plants fail to "head" properly, and upon examination the interior of the stem is found to be rotten and foul smelling. If some of this rotten tissue is highly magnified it is found to be swarming with minute, nearly colorless rods, having a length equal to three or four times their diameter. These are living organisms called bacteria, and they are undoubtedly the immediate cause of the stem-rot.

Inoculation experiments made with pure cultures of the bacterium indicate that it is unable to rot the woody outer portion of the cabbage stem, and, therefore, cannot gain access to the soft interior except through some injury to the stem. In the great majority of cases it gets in through the injuries made by the cabbage-stalk weevil or the cabbage-root maggot.

The question has been asked, "Can the disease be carried on the cabbage seed?" Yes, probably. If the disease is prevalent in the field where the cabbage seed is grown, dirt containing the germs of the disease may get on the seed-pods and in the process of thrashing be transferred to the seeds themselves. In one case reported to us there is strong evidence that the infection came with the seed. Danish cabbage was badly diseased on new land which had grown

but one crop, and that was potatoes. No manure was used. However, it cannot be said positively that the disease came with the seed. The potato is subject to certain bacterial diseases, and it is not impossible that the bacteria affecting this plant may also attack the cabbage. There are, also, bacterial diseases of weeds. Very little is known about the bacterial diseases of plants, particularly about the bacterial rots of the cabbage and its allies. On Long Island there is a bacterial stem-rot of seed cabbage which is very destructive in some seasons. There is also a bacterial stem-rot of cauliflower and kohlrabi and a head-rot of cabbage. These diseases may be all the same, and identical with the stem-rot of Danish cabbage, or they may all be distinct diseases caused by different species of bacteria. In the present state of our knowledge of such diseases we can make but few positive statements.

All observations go to show that the Danish is more susceptible to the disease than are other varieties, but why this is so we do not know. Dr. Russell, bacteriologist of the Wisconsin Experiment Station, informs the writer that cabbage stem-rot has been very destructive in Wisconsin the past season, and that the Danish variety is the one worst affected.

If it is true (as we believe) that the bacterium gets into the plant chiefly through insect injuries, the disease can be controlled by keeping away from the plant such insects as the cabbage-stalk weevil and the cabbage-root maggot. Should this remedy fail, there is but one alternative, viz: To plant those varieties which are least subject to the disease. Bacterial diseases of plants are exceedingly difficult to control. Many fungous diseases, like potato rot, black rot of the grape, apple scab, peach scab, etc., can be successfully prevented by spraying with Bordeaux mixture and other fungicides, but it is useless to spray for bacterial diseases. Although there are several bacterial diseases of cultivated plants no practical remedy is known for any one of them.

F. C. STEWART.

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Letter from

THE GROWER OF THE GENUINE
DANISH BALLHEAD CABBAGE SEED.

The very interesting paper by Mr. F. C. Stewart, of the New York Agricultural Experiment Station, gives me occasion for a few remarks upon the above subject. I am much surprised to learn, as appears from Mr. Stewart's ably written communication, the Danish Ballhead cabbage should be more subject to this disease in the United States than other varieties of cabbage,—so much the more as we, in Denmark, suffer so little from stem-rot in the cabbage that practical gardeners and cabbage growers have not even a popular name for this plant disease, and many growers assert that they have never noticed a case of it. It seems very unlikely, therefore, that germs of the disease, be they bacterial or fungous, could be carried on cabbage seed coming direct from Denmark.

If there be a sufficient number and range of observations through several seasons upon which to base the supposition that the Danish Ballhead cabbage is especially subject to stem-rot, I think,—in fact, I feel assured,—that the cause must be sought for elsewhere, it being very improbable that the disease germs could be attached to seed coming from Denmark, where the disease is practically unknown,—or at least of no mentionable importance.

But the question turns up: Have the affected cabbages, named Danish Ballhead, really been grown from seed produced in Denmark?

As far as I am informed, vast quantities, comparatively, of so-called Danish Ballhead seed are imported from Holland, Germany, and perhaps other countries. Whether such indirectly imported seed be grown in

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the countries from which it is exported, whether it be of genuine Danish Ballhead origin, and whether in the said countries, or other countries from which Danish Ballhead seed is obtained, the cabbage stem-rot is prevalent, of this I have no opinion.

A noteworthy fact strikes me: In 1895 the crop of Ballhead cabbage seed in Denmark was almost a total failure, from meteorological causes,—not one-tenth of an average crop for the area planted,—and it is, perhaps, not unreasonable to suppose that in some cases the very small quantity of seed saved under so adverse circumstances, had received a shock in constitutional power sufficiently strong to make the plants grown from such seed more liable to attacks of disease germs than would be the case with plants from seed grown and harvested under more normal circumstances. This may deserve consideration.

At all events it is a fact that only a very, very small quantity of Ballhead cabbage seed was harvested in Denmark in 1895, and by far the greater part of the so-called Danish Ballhead cabbage grown in the United States in 1896 must have been derived from other sources.

It requires a good deal of varied and well ascertained knowledge to establish with scientific accuracy all the relations of the disease here in question, and in order not to prejudice the best interests of market gardeners and consumers, I have thought it right to make the above statements and suggestions for consideration.

* *

CANDIDUM LILIES FOR OUT-DOOR CULTURE.

FOR out-of-door culture there are few lilies so lovely as the Candidum, or Easter lily. Sometimes there is disappointment in growing this lily for forcing, but when once established out-of-doors it is so easy of culture that the veriest novice can hardly fail with it.

The Candidum lily blooms in May and June; it blossoms so freely and grows so thriftily that there are few prettier sights than a clump of these lilies in full flower. A good, rich soil is prepared for them and the bulbs are set some six inches under the soil; the earth is then packed about them, and Nature is left to do the rest,—and she does it nobly, too.

There is one thing, however, about this sweet lily that in truth I must tell,—it does not like to be disturbed; it is very conservative, and after once getting well placed it likes to stay there. So it may be that at the very first it will not do quite as well as you hope for, but if taken care of and not disturbed it will come on and form new roots, and in time be more than you had asked or thought.

The Candidum lily is of the purest waxen white, large bells, and the petals are gracefully recurved. The pistil and stamens are yellow, and the "white and gold" combination is very fine and pure. I had a bunch of thirty-two of these pure lilies given to me one day and it seemed then, and seems yet, the most lovely floral tribute I have ever received. Autumn is the time to set the bulbs.

ROSE SEELYE-MILLER.

* *

SQUASH BUGS.—Mix thoroughly a teaspoonful of kerosene oil with a quart of common land plaster, and dust with it the squash and cucumber vines when the bugs appear. It is good also to prevent the beetle on the young plants of radish, turnip and cabbage.

A TALK ABOUT THE DANDELION.

No. 3.

YOU will notice that the head of flowers, as it withers, gradually closes until it looks like fig. 2. Its work is not yet finished, however; the seeds are not mature, and while they are ripening they are protected in this way,—kept indoors, we might say, out of harm's way. As soon as the seeds are ripe the doors are opened and you see the beautiful white puff-ball, or pompon, (fig. 3) on the top of dandelion stem, instead of the yellow flowers.



DANDELION in the world when it comes time —fig. 2.

for them to leave the stem and begin life on their own account. They need to fly away far enough so they will have plenty of room to grow in, and the longer the stem the better ride the wind is likely to take them. You have often seen these seeds flying in the air, and have run along after them and tried to blow them higher. After a little while they are hidden away, just anywhere the wind happens to drop them, on the well kept lawn or by the roadside. They rest awhile after their little journey,—or if a strong gust of wind should catch them up again they might have another jaunt before they would settle down for good.

In each tiny seed Mother Dandelion has stored up food for each of her darlings. The dandelion mother lives and plans for her children just as your mothers do; so when the rain has washed the little seed down into the soil and it has begun to "stretch and grow" like other babies, it finds something to feed upon already prepared for it in the tiny seed-shell. By the time it has used all this food it has grown large and strong enough to "make its own living," and in a very short time it will have grown into a new "bunch" of dandelions.

When the flowers look so bright and

we know that they have been so busy growing, and growing stigmas, styles, stamens, anthers, machinery for the manufacture of seeds; when that even in the withered flower the little mill is still running, preparing the "magic hopper," and see the pretty "pompon," with the full-fledged seeds, waiting to mount the wings of the wind; when we know about and appreciate all this, we certainly have a stronger love for our old friend, the common dandelion.

MRS. W. A. KELLERMAN.

* *

FLOWERS FOR DECORATING CHURCHES.

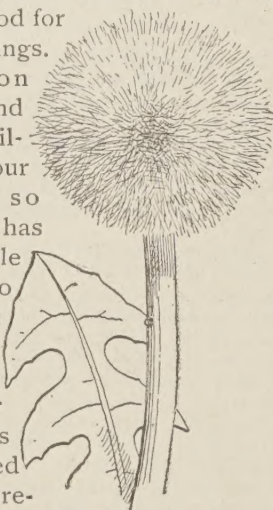
IN small towns and country villages it usually devolves upon some one or two persons to furnish flowers and decorate the church, and it sometimes requires much study and thought to perform the task successfully. Perhaps the following hints, from one who has had more than twenty years experience, may be of some help.

In choosing flowers for church decoration, it should always be borne in mind that the majority of the congregation will view them at a distance; for this reason choose rather large, or medium sized flowers of decided color; small, delicately colored flowers, and those whose beauty lie in their exquisite markings and shadings, will not show to advantage. Green must be used lavishly, and extreme care taken not to crowd the flowers, for if petals are crushed and flowers so crowded that they lose their form, they lose more than half their beauty. Probably every church goer can recall huge bunches of flowers,—a crowded mass of confused colors. The writer has a vivid remembrance of about a half bushel of peonies, white, pink and crimson, crowded into a compact bunch, without a spray of green; the good, generous soul who donated them could not bear to have a single one removed, but how much more beautiful three or four of them, loosely arranged, would have been. In arranging flowers do not try to have every one face the front, like a regiment of soldiers; turn them so that some show a profile and others a three-quarter view, and if some persist in showing their backs, why let them, for every part of a flower is beautiful.

In most gardens may be found or can easily be raised, a succession of flowers that will beautify a church, from early spring until late autumn. Lilacs and snowballs are usually in abundance; also the old fashioned varieties of irises, the old "Flower de Luce" and Blue flag, combine well. In spring may be obtained, from most woods, bunches of dogwood, moosewood and high bush cranberry blossoms; these with their tender, green



DANDELION—fig. 4.



DANDELION—fig. 3.

leaves are effective by themselves or combined with blue flags or purple lilacs. After the early spring there ought to be a wealth of summer flowers at command, roses, hardy lilies and showy annuals; dahlias, asters and the bright zinnias are among the best flowers for church use.

The Shirley poppy is beautiful, and lends itself to very graceful arrangements. A beautiful bouquet of them was sent to our church last summer; not more than two, or perhaps three, bright scarlet, another pure white, and a scarlet with a white band around it; these were so loosely arranged that not a flower touched its neighbor, above them rose a number of the bluish-green seed pods, varying in size, and below them a fringe of the delicate, finely cut leaves. The foliage is, by the way, another merit of the Shirley poppies.

If the church has a dark and dingy interior, as too many country churches have, try, some cloudy Sunday, the effect of yellow flowers. The hardy, double sunflowers are a beautiful, clear golden yellow; so is the dahlia, Fanny Purchase. Among annuals, marigolds, calliopsis Golden King, nasturtiums Cloth of Gold and bertonia are all vivid yellow.

If however, the church has glaring, white-washed walls, decorations of green have a cool effect in hot weather. If one has access to the woods many beautiful ferns may be obtained, and, though they wilt quickly, if care be taken they will remain fresh over Sunday. Sprays of Solomon's Seal are almost as beautiful as ferns, and many other graceful vines and sprays of "living green" may be found by a wood's lover. In this short article no attempt has been made to name all the flowers suitable for church decoration; the few named will doubtless suggest others.

I. McRoss.

STRAWBERRY CULTURE.

OF all the small fruits the strawberry is justly regarded as the chief. If it were put to a vote in any given locality this, no doubt, would be the verdict.

A very large number of people attempt to grow strawberries,—and it ends in the attempt. They do not go at it right. They stop short of the necessary work required to produce satisfactory results. They either do not start with the right varieties,—varieties suited to their soil or latitude, or they fail to keep the plat free from the injurious effects of weeds, allowing them to encroach perhaps at a critical period in the life of the plants; or drouth is allowed to work its destructive influence in summer time, or cold in winter. Something or other is left undone that interferes with good results.

There are certain requirements that must be met in strawberry culture, (as is the case with all other crops) and it is only when they are freely met that growing strawberries can be made a complete suc-

cuss. In nearly every locality where strawberry culture has been carried on for any length of time there is generally one variety, rarely more than two, that is universally popular,—that is for market purposes. A berry may be very good for the amateur or home garden and yet be entirely unfitted for culture for market. The very large berries are usually too soft to allow of much handling. Every year new berries are offered to the public, but growers should be chary of them.

It is good advice to give: "Stick to the old, well known sorts." It is true you can get pretty much the same berry under a score of different names, but what is the need of changing the name. With all the thousands of named sorts there are to-day no better berries than we had a score of years ago. The Crescent, the Wilson, the Sharpless and the old Cumberland are really as good as any, but the somewhat newer sorts, Bubach, Haverland, Michel, are also good. But you may plant any three, or even two, of these on the same land and one or the other is quite sure to give a little better results in one particular season. Another year it may be the other sort that does better. A grower cannot know for a certainty which kind is best for his purpose until he has tried side by side, for several years at least, a few dozen plants of the six or eight most widely grown varieties.

For market purposes, where an acre or more is given, the ordinary four-foot row is the best plan, doubtless; but for the home garden the plan of narrow beds four or four and a half feet, with two-foot walks between the beds is unquestionably the best. If these walks are dug out to the depth of a foot or so and then filled up with straw or trash it will be the means of catching and holding in reserve a considerable amount of moisture that otherwise would not be available for the use of the plant. When the grower has no facilities for irrigation the question of economizing the moisture of the rains is perhaps the most important one that will confront him.

In the south young plants should be put out in March, or April, if not planted in February. A year's growth is necessary to make a plant that will bear profusely the following year. Near cities and large towns strawberry culture should be a source of considerable profit to scores of energetic, pains-taking, intelligent men and women. It is not a crop to be recommended to persons possessing the opposite characteristics.

S. A. Cook.

Milledgeville, Ga.

Use of Small Apples.

The celebrated agriculturist, Mr. J. S. Woodward, of Lockport, N. Y., has shown in a late number of the *Rural New Yorker* that small, cull apples can, with a small addition of coarse middlings, be profitably fed to swine during winter. In a season of great abundance of apples, like that of last year, this may be important to apple growers.

A MODERN HECIRA.

"I'm ready to go," said a plump young bug, As he kicked the earth where he'd been a slug; "I'm tired to death of Paris green Which covers all that's to be seen; It smarts my stomach, and hurts my head; My brothers, one and all, are dead."

"I chose my home," said the Cabbage Worm, "Deep in the young plant's tender germ, Alas! the farmer has found me out, With powder and poison he put me to rout. And now I'm a homeless wanderer, Exiled from house and provender."

"On the orchard's bough I pitched my tent, Where the twigs by the passing winds are bent, But the farmer came with flaming torch, Driving me out to escape a scorch," Said Caterpillar, "My silver tent With a mass of smoke and flame was blent."

Said the Henhouse Mite, "I'm very small, I thought he'd never see me at all, But 'twas not long 'till kerosene Came pouring in; I think its mean To pester us Lice with pyrethrum, And the end of it all is yet to come."

"Who never has heard of hellebore," Cried the Currant Worm, with a voice that tore To the very heart of the soft Rose Slug Who exclaimed, "Aye, aye, 'tis a dreadful drug! It gives convulsions and makes us squirm In a way that's repulsive to every worm."

Then out spoke the Weevil in angry turn, "I'd like to know when the end's to come? Bisulphide of carbon is death to me, The farmer knows it, and I must flee. Who will go with me? We'll emigrate, Whoever remains deserves his fate."

Windfall, O.

—G. H.

PRUNING ROSES.

So much has been written upon this important part of rose culture, that it is difficult to discover any fresh point of view from which to treat the subject; nor can it be done by briefly pointing out methods of pruning for certain classes, seeing that all but the Polyanthas, Scotch, Ayrshires and Provence, possess varieties, varying as regards habit and strength, or weakness of growth, that no one rule can possibly be given which will meet all cases. What contrasts there are between Margaret Dickson and Etienne Levet, Lady Mary Fitzwilliam and Reine Marie Henriette, Cleopatra and Reve d'Or, Souvenir de la Malmaison and Mrs. Paul, Blanche Moreau and White Bath, Favier and Mrs. Bosanquet, as examples of their respective classes!

How often in the past, and I fear even with the present day advance in horticultural literature, have we seen yards of valuable growth cut away from our most beautiful climbers! Why should we allow such growth to be made, if only to be cut away at pruningtime? There are not many of our climbing roses cultivated with the sole object of securing a few blooms of extra quality. They are more generally grown for the artistic beauty of their masses of flower, covering the walls of a house, fence, or arbor, and to get the best results we must leave as much as possible of the new growth intact. With these it is more a question of thinning than of pruning, and we can only remove wood that has got aged and is getting flowerless in consequence. To remove the swaying growths of the previous summer is simply to sacrifice that which would afford the finest show of blossom. Make room for these by thinning, and do not draw them in too closely. These remarks apply more particularly to such rambling varieties as Felicite Perpetue, Rugosa, the Banksian, Reve d'Or, Reine Marie Henriette, and Longworth Rambler.

The same practice holds good with other extra vigorous growers not used as climbers but as

pillar roses, and for pegging down to the soil, viz., Paul Neyron, Gloire des Rosomanes. Boule de Neige and Chenedolle are splendid pillar roses, but if the best of the previous season's wood is cut away, the plants are nearly flowerless compared with what might have been the case had the older wood been thinned out, and last year's left almost intact. The ten-foot rods of Margaret Dickson, as well as the long upright growths of Ulrich Brunner, Gabrielle Luizet, Gloire Lyonnaise, and others, are by far their most valuable growths. Yet I often see these varieties pruned, mutilated—upon the same lines as A. K. Williams, Marie Baumann, and varieties with similar habit. What is the result of this? We find a small number of flowers on the plant, and its energies directed to the production of other lengthy growths similar to those which the pruner has removed. This is the sole reason that so many of our grandest roses with vigorous habit are condemned as shy bloomers, when the fault really lay with the pruning. By securing the long rods in a horizontal position we get flower throughout their whole length, and at the same time better space for the development of more such growth coming away from the base of the plant. The long rods which flowered last summer should be cut away in the early autumn, and the young growths secured to stakes, pegging them down again the following spring.

There should be little need of many words anent the pruning of such grand old favorites as General Jacqueminot, Alfred Colomb, and varieties of like habit; but even here we need bear in mind that the weaker the shoot of last season the harder it needs pruning. La France, Marie Van Houtte, Anna Olivier, Mrs. Bosanquet, and Caroline Testout, are fair representatives of vigorous growers with bushy habit, and the heads should first be well thinned in the center, then pruned upon the same basis as the General Jacqueminot class, but a little more severely. The very weak and erratic roses like Comtesse de Nadaillac, Souvenir d'Elise Vardon, Cleopatra, and Princess of Wales, should be pruned with great care. In their cases, I would simply remove pithy and indifferent wood, and slightly shorten back the remainder. I have found these to break stronger from a small eye, so long as well ripened, than from many apparently far more promising eyes, and every piece of healthy growth is valuable here.

I will close with a remark upon R. rugosa and hybrid Sweet Briars. If you wish to see the full beauty of these, they must not be pruned, but allowed to grow at will. Nor should they be planted in any position where considerable room cannot be afforded. The old favorite, the Cabbage, or Provence Rose, needs much closer pruning than might be inferred from its growth. The above is for lovers of roses, not exhibitors, who prune with that object alone.—A. Piper, in *The Gardener's Chronicle*.

* * *

KEEP UP THE FORESTS.

Keeping up a fit proportion of forests to arable land is the prime condition of human health. If the trees go, men must decay. Whosoever works for the forest, works for the happiness and permanence of our civilization. A tree may be an obstruction, but it is never useless. Now is the time to work if we are to be blessed and not cursed by the people of the twentieth and twenty-first centuries. The nation that neglects its forests is surely destined to ruin.—Hon. Elizur Wright.

THE FAMILY COZY-CORNER

Sweet Peas.

We cut bushels of sweet peas last year from a quarter of a pound of seed. The Bride of Niagara was very beautiful; every seed grew, and the plants bloomed profusely.

C. I. A.
Salisbury, N. Y.

++

Letter from an old Customer.

Your lamented father spoke of flowers as his "faultless friends"; and to me, also, they are real friends. The first choice package of flower seeds I received, was sent as a premium many years ago (1852) when Mr. James Vick was editor, I think, of the *Genesee Farmer*. Flowers were scarce in those days, compared with the present time. My packages were hailed with delight, and many were the consultations held as to where they should be planted and how. I finally, with mother's urging, prevailed on father to give up for my exclusive use the best spot (and soil, too)—his onion patch; he reluctantly gave the ground, saying I would soon lose my enthusiasm and neglect them, foreign seeds would not grow (some of them were from Vilmorin, Paris). I kept my own counsel, sowed the seeds, and waited,—oh, how anxiously for their appearance. In due time I was rewarded. Not a weed was allowed to grow, and my patch was soon a blaze of glory, and greatly admired were the lovely blossoms. The balsamis, I remember, were especially fine, large, double as roses, a surprise and delight. I have had many seeds of Vick since then,—and they grow, too.

I enclose a leaf and flower for name. In England it grew in our garden, and until recently I have not seen its familiar face since childhood. Mrs. R. H. Camden, N. Y.

The specimen received seems to be the small or field bugloss, *Lycopsis arvensis*.

++

Old Verbena seed.—Cucumber Vine.

In the April number D. L. states that verbenas seed, if old, will not grow. I wish to say I have grown as fine plants, and quite as easily, from old seed as from

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fresh. Last year I did not procure any new seed, and I concluded to sow seed I had saved three years before. It came up finely, and we had our bed of verbenas as usual.

A reader inquires about the cucumber vine, Cucumis odoratissimus. It is a rapid grower, is clean, not troubled with insects, and its clusters of white bloom are very fragrant,—a desirable vine. How pretty the new cover of the MAGAZINE is.

B. M. Y.
W. Rosendale, Wis.

++

Japanese and Brazilian Morning Glory.

The Japanese and Brazilian morning glory seeds were planted in warm boxes in the house, and broke the ground on the third morning! They were put in about 6 P. M. They partake of the spirit of the age. Poured boiling water on the Brazilian seed about mid-day; did not cut. Did nothing to the others.

Patterson, N. Y. L. A. S. D.

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